CLAIMS

1 A telecommunication system comprising an existing node with at least an existing switch with physical inlets and a local address space for addressing said inlets, wherein at least one additional switch is added to the telecommunication system, at least one of said additional switches residing in a node external to the existing node, each of said additional switches having physical inlets and a local address space for addressing said inlets, and in the existing node creating

(a) a global address space comprising the local address spaces of all the switches

(b) and means for controlling all said switches using the global address space,

thus changing the existing node to a controlling node.

2. A telecommunication system in accordance with claim 1, wherein the controlling node controls the entire additional switch in an external node or a part of the additional switch.

3. A telecommunication system in accordance with claim 2, wherein the local address space for the additional switch in the external node comprises as many addresses as the number of inlets controlled by the controlling node.

4. A telecommunication system in accordance with claim 3, wherein an address in the global address space is mapped to an address in the local address space of a switch and the identity of the switch.

5. A telecommunication system in accordance with claim 4, wherein a connection handler in said controlling node performs said mapping.

6. A telecommunication system in accordance with claim 5, wherein the global addresses have the same format as the local addresses of the existing switch.

7. A telecommunication system in accordance with claim 6, wherein the format of the local addresses of said additional switches being the same as or different from the format of the global addresses.

8. A telecommunication system in accordance with claim 7, wherein the format of the local addresses for an additional switch in an external node expresses a group of inlets and the individual inlet in said group.

9. A telecommunication system in accordance with claim 8, wherein said format expresses switch device and switch device channel.

10. A telecommunication system in accordance with claim 9, wherein there are more than one external node each having at least one additional switch controlled by the controlling node, wherein said format is common to all external nodes.

11. A telecommunication system in accordance with claim 10, wherein the local addresses of said switches are allocated one by one to global addresses in a 1:1 relationship, or said local addresses of said switches are allocated in groups to groups of global addresses, the local as well as global addresses of a group being in consecutive order.

12. A telecommunication system in accordance with claim 11, wherein said allocation is made in the connection handler.

13. A telecommunication system in accordance with claim 12, wherein all said switches are addressed by their global addresses so as to appear as one single switch to a call handler in the controlling node.

14. A telecommunication system in accordance with claim 13, wherein said call handler is using two addresses in the global address space in order to set up, release, and manipulate a connection through the telecommunication system regardless of to which switch or switches the two global addresses are allocated.

15. A telecommunication system in accordance with claim 14, wherein said call handler is using the same interface to set up, release, and manipulate a connection through the telecommunication system as the call handler previ-

ously used to set up, release, and manipulate connections in the existing switch.

16. A telecommunication system in accordance with claim 14, wherein inter-switch connections are independently set up by the connection handler in response to said call handler requesting a connection be set up between two global addresses in different switches.

17. A telecommunication system in accordance with claim 16, wherein the connection handler seizes an interconnection trunk, the interconnection trunk in response thereto returning two global addresses, one belonging to one of the switches and the other belonging to the other switch, the connection handler in response to reception of the two global addresses setting up a connection in each of the two switches.

18. A telecommunication system in accordance with claim 12, wherein a predefined part of said global address space is reserved for the existing switch and the local addresses of the existing switch are the same as the global addresses, thus not requiring any mapping in the reserved part.

19. A telecommunication system in accordance with claim 18, wherein said reserved part of the global address space starts at address 0.

20. A telecommunication system in accordance with claim 19, wherein the size of the reserved part is at least equal to the range of local addresses which software related to old trunks in the controlling node is capable of handling, thus providing backwards compatibility.

21. A telecommunication system in accordance with claim 20, wherein the size of the reserved part is at least equal to the maximum size of the existing switch, thus providing backwards compatibility for software related to the existing switch.

22. A telecommunication system in accordance with claim 20, wherein the size of the reserved part is at least equal to the maximum size of an enhanced existing switch with software capable of allocating global addresses, thus reducing execution time since no mapping is required.

23. A telecommunication system in accordance with claim 22, wherein said reserved part is less than the size of an enhanced existing switch, thus requiring allocation of global addresses for the local addresses above the reserved part.

24. A telecommunication system in accordance with claim 23, wherein when allocating a global address for a local address of the enhanced existing switch in the reserved part of the global address space the returned global address is the same as the local address, thus making the software doing the allocation independent of the size of the reserved part.

25. A telecommunication system in accordance with claim 1, wherein the size of the global address space is given by a control system in the controlling node.

26. A telecommunication system in accordance with claim 17, wherein the switches of the telecommunication system are of different kinds, thus providing a telecommunication system that comprises different kinds of switching technologies, where all switches are controlled by said controlling node.

27. A telecommunication system in accordance with claim 26, wherein the switches are selected from the group that consists of STM (synchronous transmission mode) based switches, ATM (asynchronous transmission mode) based switches and IP (Internet Protocol) based switches.

28. A telecommunication system in accordance with claim 27, wherein the existing switch is an STM-based switch and the additional switch in the external node is an ATM based switch.

29. A telecommunication system in accordance with claim 12, wherein the existing switch is a group switch.

30. A telecommunication system in accordance with claim 29, wherein a global address is a global multiple position, which is translated into a group switch multiple position for the existing switch, or into a virtual multiple position for an additional switch in an external node, said virtual multiple position representing the local address of the additional switch.

31. A telecommunication system in accordance with claim 17, wherein the global addresses and their respective translations are stored in a table.

32. A telecommunication system in accordance with claim 31, wherein said table is created in the connection handler when said allocation is performed and the information stored in the table is used by the connection handler when a connection is set up.

33. A telecommunication system comprising an existing node with at least an existing switch with physical inlets and a local address space for addressing said inlets, said existing node having a layered structure comprising a bearer service layer with said existing switch and other hardware entities, a connection layer with generic functions for controlling the switch and the hardware entities, and a call layer with traffic control functions and functions for deciding the connections to be made, wherein at least one additional switch is added to the telecommunication system, at least one of said additional switches residing in a node external to the existing node, each of said additional switches having physical inlets and a local address space for addressing said inlets, and in the existing node creating

(a) a global address space comprising the local address spaces of all the switches

(b) and means for controlling all said switches using the global address space,

which is used by the call layer.

34. A telecommunication system in accordance with claim33, wherein the controlling node controls the entire additional switch in an external node or a part of the additional switch.

35. A telecommunication system in accordance with claim 34, wherein the local address space of the additional switch in the external node comprises as many addresses as the number of inlets controlled by the controlling node.

36. A telecommunication system in accordance with claim 35, wherein an address in the global address space is mapped to an address in the local address space of a switch and the identity of the switch.

37. A telecommunication system in accordance with claim 36, wherein a connection handler in said controlling node performs said mapping.

38. A telecommunication system in accordance with claim 37, wherein the global addresses have the same format as the local addresses of the existing switch.

39. A telecommunication system in accordance with claim 38, wherein the format of the local addresses of said additional switches being the same as or different from the format of the global addresses.

40. A telecommunication system in accordance with claim 39, wherein the format of the local addresses for an additional switch in an external node expresses a group of inlets and the individual inlet in said group.

41. A telecommunication system in accordance with claim 40, wherein said format expresses switch device and switch device channel.

42. A telecommunication system in accordance with claim 41, wherein there are more than one external node each having at least one additional switch controlled by the controlling node, wherein said format is common to all external nodes.

43. A telecommunication system in accordance with claim 42, wherein the local addresses of said switches are allocated one by one to global addresses in a 1:1 relationship, or said local addresses of said switches are allocated in groups to groups of global addresses, the local as well as global addresses of a group being in consecutive order.

44. A telecommunication system in accordance with claim 43, wherein said allocation is made in the connection handler.

45. A telecommunication system in accordance with claim 44, wherein all said switches are addressed by their global addresses so as to appear as one single switch to a call handler in the controlling node.

46. A telecommunication system in accordance with claim 45, wherein said call handler is using two addresses in the global address space in order to set up, release, and manipulate a connection through the telecommunication system regardless of to which switch or switches the two global addresses are allocated.

47. A telecommunication system in accordance with claim 46, wherein said call handler is using the same interface to set up, release, and manipulate a connection through the telecommunication system as the call handler previously used to set up, release, and manipulate connections in the existing switch.

48. A telecommunication system in accordance with claim 46, wherein inter-switch connections are independently set up by the connection handler in response to said call handler requesting a connection be set up between two global addresses in different switches.

49. A telecommunication system in accordance with claim 48, wherein the connection handler seizes an interconnection trunk, the interconnection trunk in response thereto returning two global addresses, one belonging to one of the switches and the other belonging to the other switch, the connection handler in response to reception of the two global addresses setting up a connection in each of the two switches.

50. A telecommunication system in accordance with claim 44, wherein a predefined part of said global address space is reserved for the existing switch and the local addresses of the existing switch are the same as the global addresses, thus not requiring any mapping in the reserved part.

51. A telecommunication system in accordance with claim 50, wherein said reserved part of the global address space starts at address 0.

52. A telecommunication system in accordance with claim 51, wherein the size of the reserved part is at least equal to the range of local addresses which software related to old trunks in the controlling node is capable of handling, thus providing backwards compatibility.

53. A telecommunication system in accordance with claim 52, wherein the size of the reserved part is at least equal to the maximum size of the existing switch, thus providing backwards compatibility for software related to the existing switch.

54. A telecommunication system in accordance with claim 52, wherein the size of the reserved part is at least equal to the maximum size of an enhanced existing switch with software capable of allocating global addresses, thus reducing execution time since no mapping is required.

55. A telecommunication system in accordance with claim 54, wherein said reserved part is less than the size of an enhanced existing switch, thus requiring allocation of global addresses for the local addresses above the reserved part.

56. A telecommunication system in accordance with claim 55, wherein when allocating a global address for a local address of the enhanced existing switch in the reserved part of the global address space the returned global address is the same as the local address, thus making the software doing the allocation independent of the size of the reserved part.

57. A telecommunication system in accordance with claim 33, wherein the size of the global address space is given by a control system in the controlling node.

58. A telecommunication system in accordance with claim 49, wherein the switches of the telecommunication system are of different kinds, thus providing a telecommunication system that comprises different kinds of switching technologies, where all switches are controlled by said controlling node.

59. A telecommunication system in accordance with claim 58, wherein the switches are selected from the group that consists of STM (synchronous transmission mode) based switches, ATM (asynchronous transmission mode) based switches , and IP (Internet Protocol) based switches.

60. A telecommunication system in accordance with claim 59, wherein the switch in the controlling node is an STM-based switch and the additional switch in the external node is an ATM based switch.

61. A telecommunication system in accordance with claim 44, wherein the switch in the controlling node is a group switch.

62. A telecommunication system in accordance with claim 61, wherein a global address is a global multiple position, which is translated into a group switch multiple position for the existing switch, or into a virtual multiple position for an additional switch in an external node, said virtual multiple position representing the local address of the additional switch.

63. A telecommunication system in accordance with claim 49, wherein the global addresses and their respective translations are stored in a table.

64. A telecommunication system in accordance with claim 63, wherein said table is created in the connection handler when said allocation is performed and the information stored in the table is used by the connection handler when a connection is set up.

65. A telecommunication system comprising a controlling node with at least one switch and at least one other node with at least one other switch controlled by the controlling node, each of the switches having physical inlets and a local address space addressing said inlets, and in the controlling node (a) a global address space comprising all local address spaces and (b) means for controlling all switches using the global address space.

66. A telecommunication system in accordance with claim 65, wherein the controlling node controls the entire switch in an other node or a part of the switch in the other node.

67. A telecommunication system in accordance with claim 66, wherein the local address space of the switch in the other node comprises as many addresses as the number of inlets controlled by the controlling node.

68. A telecommunication system in accordance with claim 67, wherein an address in the global address space is mapped to an address in the local address space of a switch and the identity of the switch.

69. A telecommunication system in accordance with claim 68, wherein a connection handler in said controlling node performs said mapping.

70. A telecommunication system in accordance with claim 69, wherein the format of the local addresses of said other switches being the same as or different from the format of the global addresses.

71. A telecommunication system in accordance with claim 70, wherein the format of the local addresses for a switch in an other node expresses a group of inlets and the individual inlet in said group.

72. A telecommunication system in accordance with claim 71, wherein said format expresses switch device and switch device channel.

73. A telecommunication system in accordance with claim 72, wherein there are more than one other node each having at least one switch controlled by the controlling node, wherein said format is common to all of said other nodes.

74. A telecommunication system in accordance with claim 73, wherein the local addresses of said switches are allocated one by one to global addresses in a 1:1 relationship, or said local addresses of said switches are allocated in groups to groups of global addresses, the local as well as global addresses of a group being in consecutive order.

75. A telecommunication system in accordance with claim 74, wherein said allocation is made in the connection handler.

76. A telecommunication system in accordance with claim 75, wherein all said switches are addressed by their global addresses so as to appear as one single switch to a call handler in the controlling node.

77. A telecommunication system in accordance with claim 76, wherein said call handler is using two addresses in the global address space in order to set up, release, and manipulate a connection through the telecommunication system regardless of to which switch or switches the two global addresses are allocated.

78. A telecommunication system in accordance with claim 77, wherein inter-switch connections are independently set up by the connection handler in response to said call handler requesting a connection be set up between two global addresses in different switches.

79. A telecommunication system in accordance with claim 78, wherein the connection handler seizes an interconnection trunk, the interconnection trunk in response thereto returning two global addresses, one belonging to one of the switches and the other belonging to the other switch, the connection handler in response to reception of the two global addresses setting up a connection in each of the two switches.

80. A telecommunication system in accordance with claim 75, wherein a predefined part of said global address space is reserved for the first switch in the controlling node and the local addresses of said first switch are the same as the global addresses, thus not requiring any mapping in the reserved part.

81. A telecommunication system in accordance with claim 80, wherein said reserved part of the global address space starts at address 0.

82. A telecommunication system in accordance with claim 81, wherein the size of the reserved part is at least equal to the maximum size of said first switch with software capable of allocating global addresses, thus reducing execution time since no mapping is required.

83. A telecommunication system in accordance with claim 82, wherein said reserved part is less than the size of said first switch, thus requiring allocation of global addresses for the local addresses above the reserved part.

84. A telecommunication system in accordance with claim 83, wherein when allocating a global address for a local address of said first switch in the reserved part of the global address space the returned global address is the same as the local address, thus making the software doing the allocation independent of the size of the reserved part.

85. A telecommunication system in accordance with claim 65, wherein the size of the global address space is given by a control system in the controlling node.

86. A telecommunication system in accordance with claim 79, wherein the switches of the telecommunication system are of different kinds, thus providing a telecommunication system that comprises different kinds of switching technologies, where all switches are controlled by said controlling node.

87. A telecommunication system in accordance with claim 86, wherein the switches are selected from the group that consists of STM (synchronous transmission mode) based switches, ATM (asynchronous transmission mode) based switches or IP (Internet Protocol) based switches.

88. A telecommunication system in accordance with claim 87, wherein the switch in the controlling node is an STM-based switch and the additional switch in said other node is an ATM based switch.

89. A telecommunication system in accordance with claim 75, wherein said first switch in the controlling node is a group switch.

90. A telecommunication system in accordance with claim 89, wherein a global address is a global multiple position, which is translated into a group switch multiple position for said first switch, or into a virtual multiple position for a switch in said other (kolla antecendent node, said virtual multiple position representing the local address of the switch in said other node.

91. A telecommunication system in accordance with claim 79, wherein the global addresses and their respective translations are stored in a table.

92. A telecommunication system in accordance with claim 91, wherein said table is created in the connection handler when said allocation is performed and the information stored in the table is used by the connection handler when a connection is set up.